

In the western districts there was much snowfall in the Rocky Mountain region and the outlook for a good supply of water for the coming summer was greatly improved; also in most of the Plateau region there was much improvement in the outlook, although over the northern portions the stored snow is still less than normal.

In the mountains of California there was considerable snow during the month, but the seasonal fall is still far below the normal and the indications are that the water shortage for irrigation and power purposes will be serious.

In connection with the general rain and snowstorm of the 27th to 30th there were many reports of the deposit of a brownish substance in connection with both the rain and snow, over wide areas, but particularly in the upper Mississippi Valley and adjacent districts. In this con-

nection it is interesting to note that on the 27th and 28th there were high winds in many portions of New Mexico, much plowed land was badly drifted, and in some sections of the State the dust storms were reported as the worst ever known.

RELATIVE HUMIDITY

The moisture conditions existing in the atmosphere during March, as indicated by the average relative humidity, were mainly not far from the average, except for a rather marked excess over the Great Plains, where much cold, inclement weather prevailed, and a general deficiency in the far western sections, where the weather was warmer and there was mainly a considerable deficiency in the precipitation.

SEVERE LOCAL STORMS, MARCH, 1924

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Apalachicola, Fla.	9	4:35-7:05 a. m.			\$1,000	Wind	Fishing boats damaged	Official, U. S. Weather Bureau
Maryland, southern Pennsylvania, and northern Virginia	10-11			2	1,000,000	High winds and heavy fall of moist snow	Telephone, telegraph, and lighting systems crippled; about 3,500 poles blown down; electric schedules interrupted; trees injured.	Official, U. S. Weather Bureau; Sun (Baltimore, Md.)
New York, N. Y., and adjacent seacoast	10-11					Gale and rain	Shipping paralyzed; wire communication interfered with and some property damage.	Morning Sun (Binghamton, N. Y.)
Richmond, Va.	10-11					Wind and snow	Communication lines badly crippled; traffic delayed.	Official, U. S. Weather Bureau; News Leader (Richmond, Va.)
Atlantic City, N. J.	10-11					Wind, rain, and snow	No damage reported	Official, U. S. Weather Bureau
Providence, R. I.	11-12				800,000	Wind and snow	Telephone and light companies suffer heavy loss; car service tied up; other property damage.	Do.
Harper, Montgomery, and Elk Counties, Kans.	28				5,000-10,000	Series of 5 tornadoes	Farm buildings, fences, wires, and some stock cars damaged.	Do.
Ludington, Mich.	28-29					Wind, rain, sleet, and snow	Damage principally to overhead wires	Do.
Oklahoma	28-29			8	841,000	Tornadoes and high winds	Tornadoes at Noble and Shawnee, resulting in 68 injured. Severe winds in other parts of State, especially Oklahoma City and southern part of Tillman County.	Do.
Illinois	28-29					Winds	Residences and other buildings damaged; trees, fences and poles destroyed; orchards injured. At Alton tornadoic wind injured 1 person.	Do.
Missouri	28-29			3	204,000	Tornadoes and winds	Orchard trees uprooted; wires broken; stock killed, and some buildings blown down. One tornado at Oregon, another traversed New Madrid, Scott, Bollinger, and Girardeau Counties causing much property damage.	Do.
McCracken and Ballard Counties, also cities of Newport and Covington, Ky.	28-29					High winds	Towns of Lamont, Grahamville, and Maxon suffered severely in loss of buildings; extreme damage in vicinity of Newport and Covington.	Do.
Southwest Arkansas and Northwest Louisiana	28-29				250,000	do	Heavy damage in gas and oil fields	Do.
West Texas	28-29					Wind and sand	Crops, buildings, and communication lines considerably damaged; 3 persons injured near Vernon.	Do.
Southeast portion of Wisconsin	28-30				1,000,000	Sleet, snow, and wind	Serious damage to trees and overhead wire systems; highways blocked and railway and interurban traffic delayed.	Do.
Evansville, Ind.	29					High winds	Considerable damage throughout the city	Do.
Sullivan County, Ind.	29	a. m.			200,000	Winds	General damage done; 5 persons injured.	Star (Terre Haute, Ind.)
Terre Haute, Ind.	29	9:45 a. m.			5,000-6,000	do	Interurban car service delayed; wires and poles damaged.	Official, U. S. Weather Bureau
Cincinnati, Ohio	29	a. m.				do	Considerable damage in various parts of the city	Do.

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STORMS AND WEATHER WARNINGS

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From its beginning to its end the month of March gave winter cyclone types, at times of pronounced intensity, over practically all parts of the country. It is noteworthy that during much of the month there was a suppression of the rather common type of cyclone that moves along the northern border after having passed into British Columbia from the North Pacific Ocean or Alaska. Hence, cyclones which crossed the country did so in low latitudes, and, as is the case in practically all instances, these disturbances were attended by widespread precipitation, much of it in the form of snow along and to the north of the track of the center of the cyclones and were also attended by high winds and by the carrying far southward of cold air by the local wind circulations as the cyclones passed eastward.

One naturally asks why March of 1924 should conform so closely to typical February cyclonic types rather than to types characteristic of early spring? Why did the cyclones move in low rather than high altitudes, and the month turn out to be one of much cloudiness, unusual storminess, and cold weather? Unquestionably the immediate cause is seen in the phenomenally low barometric pressure which persisted throughout the month over much of the North Atlantic Ocean, which permitted nearly all cyclones to reach the Atlantic coast south of Cape Cod, whereas under normal pressure conditions they pass off the continent by way of the St. Lawrence Valley. During March, 1924, the upper air winds over the United States east of the Rocky Mountains were commonly observed from the West and Northwest, whereas, ordinarily they are from the West or Southwest a considerable part of the time. Moreover,